







EXERCISE 14G GEOMETRIC REPRESENTATION OF FRACTIONS

Complete the following table, filling in the shading where necessary:

Figure	Fraction shaded	Percentage shaded	Percentage unshaded
a		$\frac{1}{2}$	50%
b		$\frac{3}{4}$	75%
c		$\frac{3}{4}$	75%
d		$\frac{1}{4}$	25%
e		$\frac{7}{10}$	70%
f		$\frac{5}{6}$	83 $\frac{1}{3}$ %

$$\begin{aligned} f) \quad & \frac{1}{6} \times 100\% \\ &= \frac{100}{6}\% \\ &= 16\frac{4}{6}\% \\ &= 16\frac{2}{3}\% \end{aligned}$$

Name







Date

Can we find a 20% discount?

Sheet 91

The manager of a supermarket decides to give a 20% discount on the prices shown. Complete the table below to find the price of each item at 20% discount. Note that the 20% discount will usually be rounded so that the customer gets the best deal. For example, 20% of the Brantime price is 51.8p but the manager will round that up to 52p. * $1\text{£} = 100\text{p}$

Special reductions on breakfast cereals

Item	Normal price	20% of normal price	Amount to be subtracted	Reduced price
 Brantime	£2.59	51.8p	52p	£2.07
 Poprice	£1.98	$198\text{p} \times 0.2 = 39.6\text{p}$	40p	$1.98 - 0.4 = \text{£}1.58$
 Weeties	£2.85	57p	57p	£2.28
 Special O	£3.15	63p	63p	£2.52
 Wheatshreds	£2.99	59.8p	60p	£2.39
 Topcorn	£2.45	49p	49p	£1.96

Teacher's notes

Suggested objective: Find 20% discount on prices shown in pounds and pence.

Problem: Can we find a 20% discount?

Ensure that the children understand the use of the table and the rounding up of the discount where necessary. You could allow them the use of a calculator or you may prefer to encourage them to find 10% then double it to find 20% – they may then need to round up to find the next whole penny price.

Name







Date

Can we find a 25% discount?

Sheet 93

The manager of a grocery shop decides to give a 25% discount on the prices shown. Complete the table below to find the price of each item at 25% discount. Note that the 25% discount will usually be rounded so that the customer gets the best deal.

Special reductions on fruit juices

Item	Normal price	Reduced price
 Apple juice	£0.84	$\text{£}0.84 \times \frac{3}{4} = \text{£}0.63$
 Orange juice	£0.96	$0.96 - 0.24 = \text{£}0.72$
 Mango juice	£1.60	£0.4
 Pineapple juice	£1.80	£0.45
 Blackcurrant juice	£2.20	£0.55
 Grape juice	£2.40	£0.60

Teacher's notes

Suggested objective: Find 25% discount on prices shown in pounds and pence.

Problem: Can we find a 25% discount?

On this sheet the table only has three columns and the children are required to combine two steps to complete each cell in the 'reduced price' column. You could allow them the use of a calculator or you may prefer to encourage them to find 50% then halve it to find 25% – they then have a choice of subtracting 25% from the full price or adding 25% to 50%.

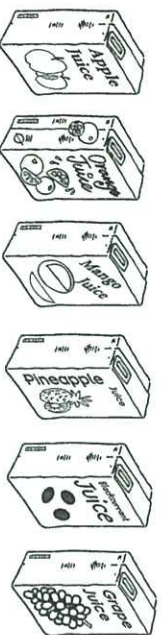
Name _____

Date _____

Sheet 94

How much money can Mum save?

Mum orders her groceries online once a month. She likes to buy items that are reduced, then to work out how much money she has saved.



Look at the table on sheet 93 showing prices of fruit juice.

How much does Mum save if she buys the following juices at reduced prices...

2 cartons of apple juice and 3 cartons of pineapple juice?

£ 1.77

$$2(0.84 - 0.63) + 3(1.8 - 1.35) = 2 \times 0.21 + 3 \times 0.45 = 1.77$$

3 cartons of orange juice and 3 cartons of mango juice?

£ 1.92

$$(3 \times 0.24 + 3 \times 0.4) = 1.92$$

2 cartons of blackcurrant juice and 3 cartons of grape juice?

£ 2.90

$$2 \times 0.55 + 3 \times 0.6$$

$$= 2.9$$

1 carton of each type of juice?

£ 2.45

$$0.83 + 0.72 + 1.2 + 1.35 + 1.65 + 1.80 = 2.45$$

Teacher's notes

This activity sheet to be used in conjunction with sheet 93.
Suggested objective: Solve multi-step problems choosing appropriate calculations.

Problem: How much money can Mum save?

The children need to extract information from the table created on sheet 93 to be able to complete the calculations specified in the problems on this sheet. Encourage them to follow the seven steps to success.

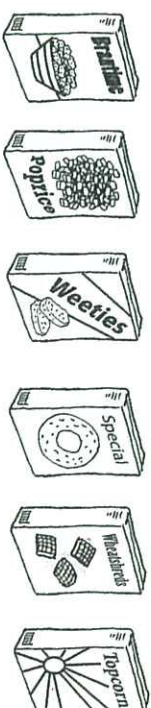
Name _____

Date _____

Sheet 92

How much money can Mum save?

Mum orders her groceries online once a month. She likes to buy items that are reduced, then to work out how much money she has saved.



Look at the table on sheet 91 showing prices of breakfast cereals.

How much does Mum save if she buys these cereals at reduced prices ...

2 packets of Branflakes and 1 packet of Special O?

£ 1.67

$$(2 \times 52 + 63) p = 167 p$$

3 packets of Popcorn and 2 packets of Weeties?

£ 2.61

$$(3 \times 49 + 2 \times 57) p = 261 p$$

4 packets of Poprice and 4 packets of Wheatshreds?

£ 4.00

$$(4 \times 40 + 4 \times 60) p = 400 p$$

(£ 4)

1 packet of each type of cereal?

£ 3.21

$$52 + 40 + 57 + 63 + 60 + 49 = 321 p$$

Teacher's notes

This activity sheet to be used in conjunction with sheet 91.
Suggested objective: Solve multi-step problems choosing appropriate calculations.

Problem: How much money can Mum save?

The children need to extract information from the table created on sheet 89 to be able to complete the calculations specified in the problems on this sheet. Encourage them to follow the seven steps to success.

Name

Date

Can you find percentages of amounts?



Stan is looking for a new car.

The car salesman says that Stan can have a 10% discount if he buys this car straight away. How much is the discount worth?

£670

For more complicated percentages, we can use a calculator or we can try to work it out in other ways. For example to find 20% of £540:

Step 1: Find 10% by dividing by 10.
so 10% of £540 = £54

Step 2: Multiply the answer by 2
to find 20%.
So 20% of £540 = £108

To find 30% we could multiply the answer to Step 1 by 3.
So 30% of £540 = £162

How much is 40% of £540?

£216

How much is 50% of £540?

£270

How much is 60% of £540?

£324

How much is 70% of £540?

£378

How much is 80% of £540?

£432

How much is 90% of £540?

£486

To find 5% of £540:

Step 1: Find 10% by dividing by 10.
10% of £540 = £54

Step 2: Divide the answer by 2
to find 5%.
So 5% of £540 = £27

To find 15% of £540. Just add the 5% answer to the 10% answer.
So 15% of £540 = £81

Combine some of the previous answers to solve these questions:

How much is 45% of £540?

£243

How much is 65% of £540?

£351

Teacher's notes

Suggested objective: Find percentages of whole number quantities.

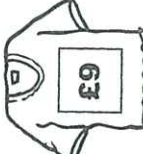
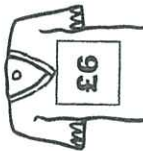
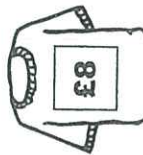
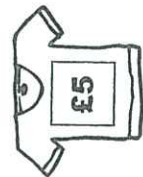
Problem: Can you find percentages?

This sheet provides children with the opportunity to develop a systematic approach to finding percentages mentally. Sheet 99 features problems that can make use of this approach.

Name

Date

Can you find percentages?



How much is 10% of £5?

£0.50

How much is 40% of £5?

£2

How much is 10% of £8?

£0.80

How much is 35% of £8?

£2.80

How much is 10% of £6?

£0.60

How much is 90% of £6?

£5.40

How much is 10% of £9?

£0.90

How much is 65% of £9?

£5.85

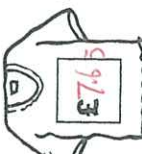
How much is 10% of £12?

£1.20

How much is 85% of £12?

£10.20

The manager decides to reduce the prices of all the tops by 15%. Write the new prices on the tops.



Teacher's notes

Suggested objective: Find percentages of whole number quantities.

Problem: Can you find percentages?

Children need to remember the mental approach to finding percentages that they have practised on sheets 96 and 97. On this sheet they will also need to realise that the percentage values could be given in pence or pounds; for example, 10% of £8 could be given as £0.80 or 80p. For the final question they will need to find the 15% reduction then subtract this from the original price.

Name

Date

Can you find percentages?

Sheet 100



How much is 10% of £2450?

£ 245

How much is 45% of £2450?

£ 1102.5

How much is 10% of £3600?

£ 360

How much is 25% of £3600?

£ 900

How much is 10% of £4800?

£ 480

How much is 60% of £4800?

£ 2880

How much is 10% of £5200?

£ 520

How much is 35% of £5200?

£ 1820

How much is 10% of £2900?

£ 290

How much is 95% of £2900?

£ 2755

The car salesman decides to reduce the prices of all the cars by 15%.
Write the new prices on the car windcreens.



Teacher's notes

Suggested objective: Find percentages of whole number quantities.

Problem: Can you find percentages?

Children need to remember the mental approach to finding percentages that they have practised on sheets 96 and 97. For the final question they will need to find the 15% reduction then subtract this from the original price.

Name

Date

Can you find percentages?

Sheet 99



How much is 10% of £6700?

£ 670

How much is 20% of £6700?

£ 1340

How much is 5% of £6700?

£ 335

Use your answers to the questions above to help you to answer these questions:

How much is 30% of £6700?

£ 2010

How much is 70% of £6700?

£ 4690

How much is 90% of £6700?

£ 6030

How much is 15% of £6700?

£ 1005

How much is 25% of £6700?

£ 1675

How much is 85% of £6700?

£ 5695

How much is 75% of £6700?

£ 5025

Stan agrees to buy the car if the salesman will take 15% off the price. What price is Stan offering to pay?

£ 5695

Where have you seen that value before on this sheet?

85% of £6700

Teacher's notes

Suggested objective: Find percentages of whole number quantities.

Problem: Can you find percentages?

This sheet encourages children to follow the systematic approach to finding percentages mentally. Note that the final question is designed to show the children that 15% discount amounts to the same as 85% of the full price – more able children will be able to make use of the technique shown in this example when tackling further problems.